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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,176	06/16/2005	Teruaki Fujinaga	050036	2248

21254 7590 01/10/2007  
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VIENNA, VA 22182-3817

EXAMINER
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NGUYEN, HONG VINH T

ART UNIT	PAPER NUMBER
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2112

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

10/539,176

**Applicant(s)**

FUJINAGA, TERUAKI

**Examiner**

Hong-Vinh Nguyen

**Art Unit**

2112

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20050616 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 20050616.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Oath/Declaration***

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because it is unclear whether priority is claimed for the disclosed foreign application 2002-376538, applicant should indicate either a "yes" or "no".

### ***Drawings***

2. Figure 15 and 16 should be designated by a legend such as --Prior Art—because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1,2,4-6,8-11 rejected under 35 U.S.C. 102(b) as being anticipated by Hazelton et al. (6,208,045).
3. Regarding claim 1, please see column 3 (lines 1-8, 30-41) and figures 6A and 6B as shown below.

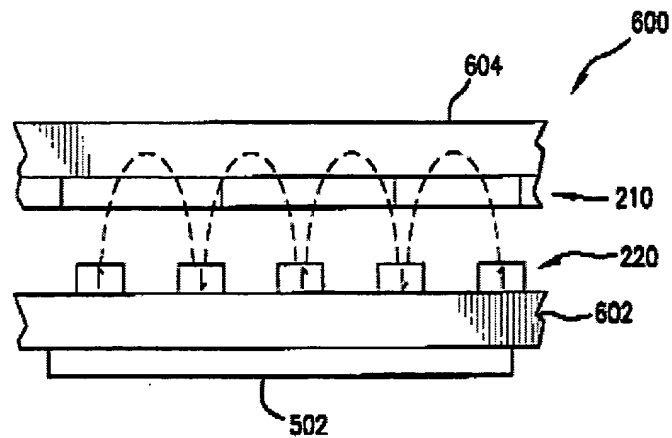


FIG. 6A

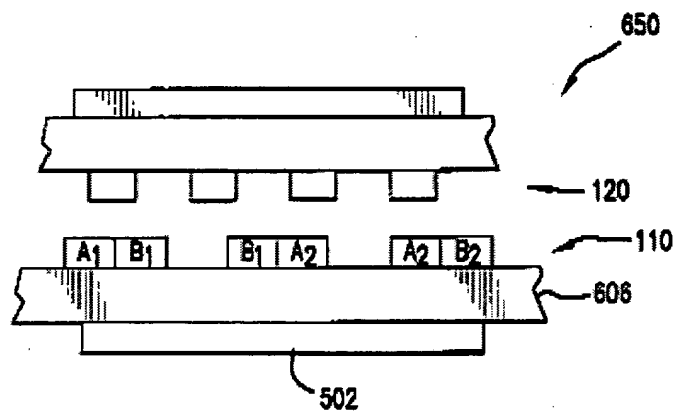


FIG. 6B

Figure 1: Figures 6A and 6B of Hazelton et al.

Figures 6A and 6B show positioning devices 600 and 650; magnet arrays 220 and 120; support members 602 and 606; coil arrays 210 and wafer 502. The position devices have a moving part with coils or magnets, and a fixed part with magnets or coils, respectively. The written description of the devices can be found in column 3 (lines 1-8 and 30-41).

Art Unit: 2112

4. In regard to claim 2, Hazelton et al. disclose figure 1A, shown below. With 132 being a post where the coil 130 is wrapped around, the coil has to be wound in a parallel fashion with respect to the surface of the permanent magnet.

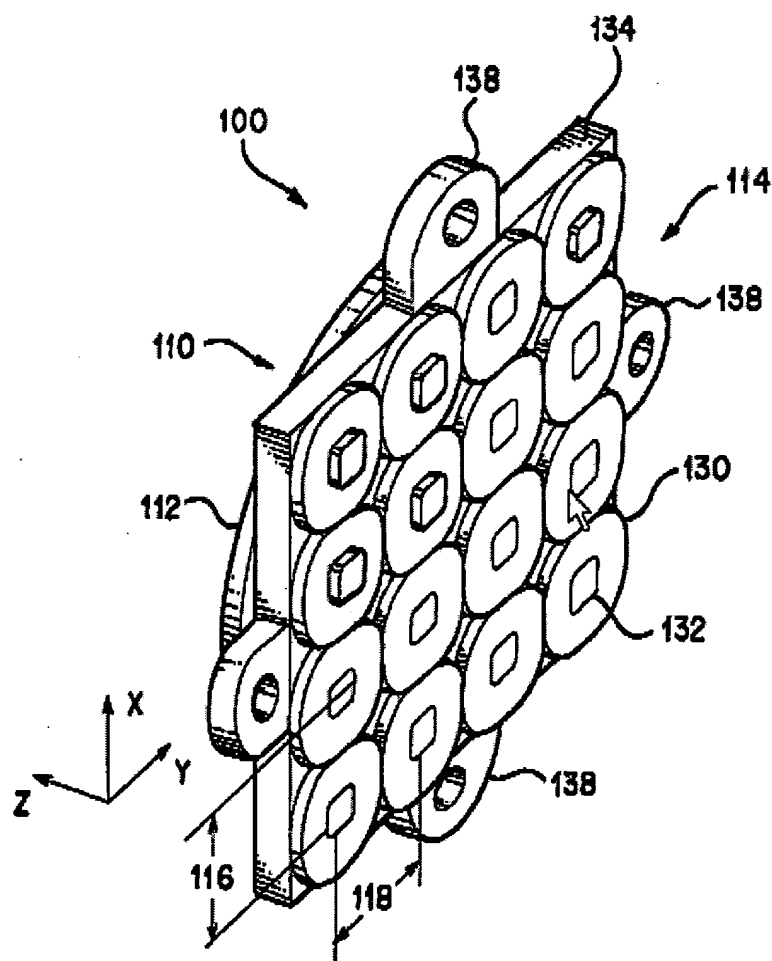
**FIG. 1A**

Figure 2: Figure 1A of Hazelton et al.

5. Regarding claim 4, column 5 (lines 37-40) discloses the post 132 as a

magnetically impermeable post, essentially the core, which the coil wraps around. It also discloses that the post can be magnetically permeable which would result in a different effect than the impermeable one.

6. Regarding claim 5, Hazelton et al. disclose in column 5 (lines 40-44) a backing panel 134 of the above figure 1A that "may comprise a magnetically permeable material, such as iron". This serves to increase the permanent magnetic flux through the coils and boost performance.

7. Regarding claim 6, Hazelton et al. teach a contact-free mechanism of air bearing in "separating or levitating the coil array... or magnet array..." column 5 (lines 60-64).

8. Regarding claim 8, Hazelton et al. also teach coils mounted on fixed part in column 3 (lines 1-3) and figures 6A and 6B mentioned earlier.

9. Regarding claim 9, the concept of a moving part moves in one direction against a fixed part is disclosed in column 3 (lines 30-41), where the "electric motor is capable of positioning the support member in at least three degrees of freedom".

10. Regarding claim 10, in column 3 (lines 30-41) Hazelton teaches that the support member can be moved in at least three degrees of freedom. Also, the coil array does consist of a plurality of coils, as can be seen in figure 1A.

11. Regarding claim 11, Hazelton et al. discloses rotation motion about the Z direction in column 7 (lines 15-22) as well as the three degrees of freedom movement in column 3 (lines 30-41). As mentioned before, the coil array does consist of a plurality of coils, as shown in figure 1A.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Hazelton et al. as applied to claim 3 above, and further in view of Wasson et al. (6,163,091). Hazelton et al. fails to teach the idea of having the coil wound perpendicular to the surface of the permanent magnet but Wasson et al. does. Figure 1A and 1B as shown below, and column 2 (lines 1-13). Wasson et al. disclose that a coil wound in a perpendicular or parallel manner would basically have the same effect. "In either case, the principle that a current applied to the coils will cause the coils...to experience a force and, therefore, to move relative to the magnets, applies."



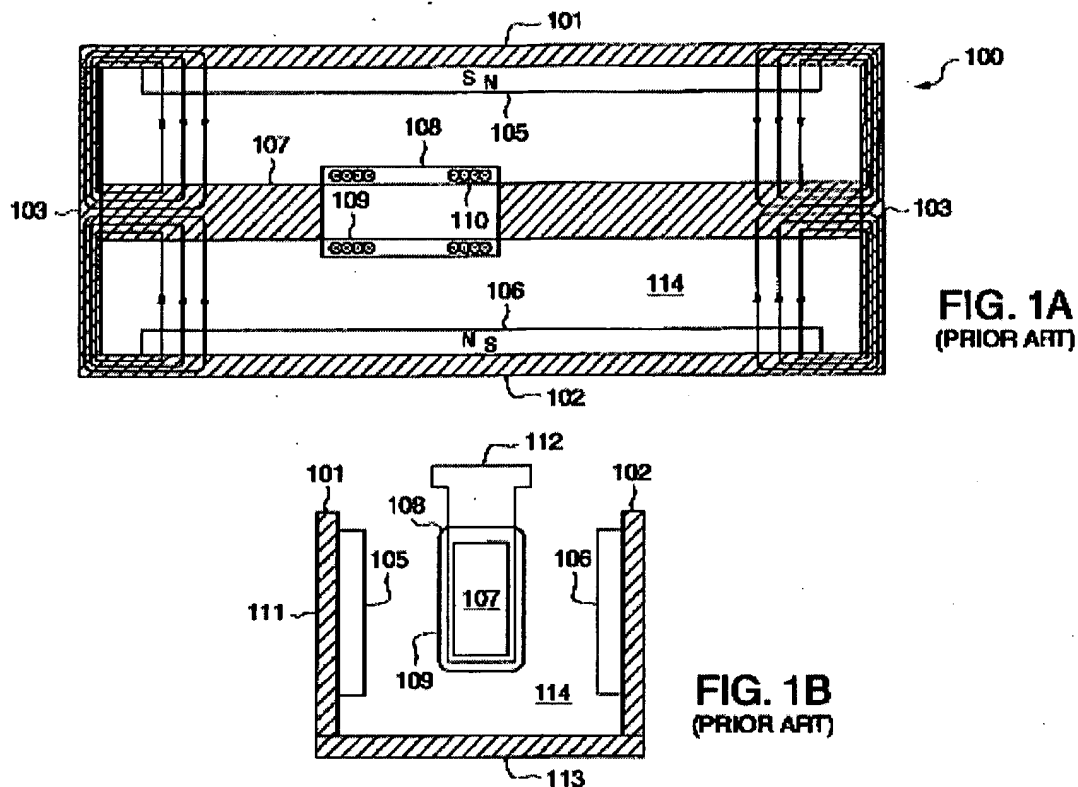


Figure 3: Figure 1A and 1B of Wasson et al.

14. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Hazelton et al. as applied to claim 7 above, and further in view of Matsumoto (5,477,097). While Hazelton et al. does not disclose an ultrasonic levitation mechanism in his invention, Matsumoto does. In column 1 (lines 31-39) Matsumoto teaches that there are various methods for levitation specifically in a micro-actuator, namely mechanical bearings, magnetic and ultrasonic wave. One method might be favored over the other depending on their use, but they are interchangeable. A person of ordinary skill in the art would know these different methods and how to apply them in the technology of motor structure.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong-Vinh Nguyen whose telephone number is (571) 270 1743. The examiner can normally be reached on Monday through Friday from 8 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bruce, can be reached on Monday through Friday. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HVN

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DAVID BRUCE  
SUPERVISORY PATENT EXAMINER